BRUHATH BANGALORE MAHANAGARA PALIKE
Byatarayanapura Division

Name of the work: Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Second RA Bill
Test Reports

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Ram and Company, Engineers & Contractors.
Total Weight in gm:	3000

SIEVE ANALYSIS

Type of Material	40 mm down size	Proposed Use	Drain
Sample Location	at Site	Date of Sampling	12/01/2018
		Date of Testing	12/01/2018

IS Sieve Size	Weight Retained in gm	Cum. Weight Retained in gm	Cumulative Weight Retained in %	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA-2007) % of Passing For Graded Aggregate of Nominal Size
80.00mm	0	0	0.00	100.00	100
63.00mm	0	0	0.00	100.00	-
40.00mm	82	82	2.73	97.27	95-100
20.00mm	1320	1402	46.73	53.27	30-70
10.00mm	768	2170	72.33	27.67	10-35
4.75mm	692	2862	95.40	4.60	0-5
Pan	138	3000	100.00	0.00	

Remarks : Satisfactory / Not Satisfactory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(NZ)

Consultant's Representative

For M/s RAM & COMPANY

Partner

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	M/S Ram and Company, Engineers & Contractors.				
Total Weight:	10000	gms			

SIEVE ANALYSIS

Type of Material	20 mm down size		**Proposed Use**	**coping Concrete**	
Sample Location	At Plant		**Date of Sampling**	12/01/2018	
			Date of Testing	12/01/2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
40.00 mm	0	0	0	100	**100**
20.00 mm	268	268	2.68	97.32	**95 - 100**
10.00 mm	4832	5100	51.00	49.00	**25 - 55**
4.75 mm	4212	9312	93.12	6.88	**0 - 10**
Pan	688	10000			

Remarks : Satisfactory / Not Satisfactory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(W7)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Ram and Company, Engineers & Contractors.

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**Sand/M sand**	**Proposed Use**	Drain
Location/Source	**At Plant/site**	**Date of Sampling**	12/01/2018
Period of Soaking	**24 hours**	**Date of Testing**	12/01/2018

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.	670	650	670	
B	Weight of oven - dry sample gm.	660	642	661	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1698	1683	1697	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.672	2.653	2.665	**2.663**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.515	1.246	1.362	**1.374**

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

A.E.(W.T)

TEJUS CONSULTANTS

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

TEST REPORT					
Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.				
Consultants	Tejus Consultants, Bangalore				
Contractor	M/S Ram and Company, Engineers & Contractors.				
SIEVE ANALYSIS					
Total Weight:	**3000** gms				
Type of Materia	**Fine aggregate (River Sand/M**		**Proposed Use**	Drain	
Sample Location	At Plant/site		**Date of Sampling**	12/01/2018	
			Date of Testing	12/01/2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	252	252	8.40	91.60	**90 - 100**
2.36 mm	288	540	18.00	82.00	**75 - 100**
1.18 mm	508	1048	34.93	65.07	**55 - 90**
0.600 mm	562	1610	53.67	46.33	**35 -59**
0.300 mm	602	2212	73.73	26.27	**8-30**
0.150 mm	508	2720	90.67	9.33	**0 - 10**
Pan	280	3000			**-**
Remarks :	Satisfactory / Not Satisfactory				

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

AE(W7)

Consultant's Representative

For M/S. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Test Report on Cement

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Sample ID	Cement
Date of Sample Tested	12/01/18
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	38 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	332 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

A6.07

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(NP)

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Test Report on Cement

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Sample ID	Cement
Date of Sample Tested	12/01/18
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	37 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	362 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	3 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

AE W-7
Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(W7)

TEJUS CONSULTANTS

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

PRECAST SLAB (CORE) TEST REPORT

lient	:	Bruhat Bangalore Mahanagara Palike
ontractor	:	M/S Ram and Company, Engineers & Contractors.
ame of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
o.of Sample Tested	:	3
ate of Testing	:	03/02/18
chinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
ade of Concrete	:	M_{20} - 100mm thick

No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	90.00	0.432	2444.62	1.80	0.960	37.30	19.00	20.52	19.70	24.62
2	50.00	90.00	0.430	2433.30	1.80	0.960	36.62	18.65	20.14	19.34	24.17
3	50.00	90.00	0.428	2421.98	1.80	0.960	38.10	19.40	20.96	20.12	25.15

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he results indicated above are based on the tests carried out on the samples received in the laboratory.

ny Query regarding the report must be reported reported within 15days from the date of testing.

Assistant Executive Engineer, Kodigehalli Sub Division, Yelahanka Zone, BMP, Bangalore.

AE (WSD)

For M/s. RAM & COMPANY

Partner

TEJUS CONSULTANTS

TEJUS CONSULTANTS
No. 58, 3rd main, 6th Cross, 1st Stage KHB Colony, Basaveshwaranagar, Bangalore - 560079, O : +91 80 23287532, tejusconsultants@gmail.com

TEJUS
CONSULTANTS

PAVER BLOCK(COBBLE STONE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	M/s.Ram and Company
Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
No.of Sample Tested	:	3
Date of Testing	:	09/02/2018
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Sl. No.	Details	FLEXURAL STRENGTH, fcr in N/mm^2	Charecteristic Copressive strength fck in N/mm^2	Average Charecteristic Copressive strength fck in N/mm^2
1	Paver Block	3.76	28.88	28.55
2	Paver Block	3.70	27.96	
3	Paver Block	3.76	28.82	

Results: Copressive strength of Paver Block(N/mm^2)=	**28.55**

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported reported within 90 days from the date of testing.

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

AE(W7)

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors.

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	WMM	**Date of Sampling**	**08/02/2018**
Sample Location	**At plant**	**Date of Testing**	**08/02/2018**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	375.00	370.00	380.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	294.00	282.00	300.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	81.00	88.00	80.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	21.60	23.78	21.05	
5	Average Aggregate impact value	(%)	22.15			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(W7)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors.

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	At plant	**Date of Sampling**	**08/02/2018**
		Date of Testing	**08/02/2018**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	850	72	778	88
16.0	12.5	1110	118	992	136
12.5	10.0	740	82	658	52
10.0	6.3	550	78	472	42
Total		**3250**	**350**	**2900**	**318**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.77
Elongation Index(%):	10.97
Combined FI+EL (%)	21.73

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P
Bangalore.

AE(WS)

TEJUS CONSULTANTS

Consultant's Representative

For M/s. RAM & COMPANY

Partner

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors.
Date of Testing	:	08/02/2018
Type of Mix	:	WMM
Sample I/D	:	WMM 1

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	At plant	**Date of Sampling:**	08/02/2018
		Date of testing:	08/02/2018
Type of material & Purpose:	WMM	**Oven Dry Wt.(gms):**	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	588	588	5.88	94.12	95-100
22.4	2128	2716	27.16	72.84	60-80
11.2	1822	4538	45.38	54.62	40-60
4.75	1862.0	6400	64.00	36.00	25-40
2.36	1344.0	7744	77.44	22.56	15-30
0.6	788.0	8532	85.32	14.68	8.0-22.0
0.075	922.0	9454	94.54	5.46	0-8
Pan	546.0				
Total	10000.0				

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

For M/s. RAM COMPANY

Partner

AE(WT)

Consultant's Representative

TEJUS
CONSULTANTS

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.	
Client	BRUHAT BANGALORE MAHANAGARA PALIKE	
Consultant	M/s Tejus Consultants	
Contractor	M/S Ram and Company, Engineers & Contractors.	
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)		
	Date:	**10/02/2018**
Layer no. or level	WMM I layer	
Depth of hole	250mm	
Field density:	1	2
Wt. of wet material from hole (Ww) gms.	6222	6100
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9636	9710
Wt. of sand in cone (w3) gms.	835	842
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3529	3448
Bulk density of sand (γs)gm/cc	1.31	1.31
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.31	2.32
Moisture meter reading(moisture content)	12.10	12.10
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.06	2.07
MDD	2.10	2.10
OMC	13.00%	13.00%
% compaction obtained	98.11	98.45
% compaction required	98%	98%

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Consultant's Representative

For M/s. Ram & Company

Partner

TEJUS
CONSULTANTS

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors.

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	DBM	**Date of Sampling**	**16/02/2018**
Sample Location	At plant	**Date of Testing**	**16/02/2018**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	355.00	360.00	370.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	272.00	278.00	286.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	83.00	82.00	84.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.38	22.78	22.70	
5	Average Aggregate impact value	(%)	22.95			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(W)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	DBM	Proposed Use	DBM
Sample Location	At plant	Date of Sampling	16/02/2018
		Date of Testing	16/02/2018

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	7800	702	7098	410
31.5	25.0	4250	152	3569	200
25.0	20.0	2350	282	1978	244
20.0	16.0	1250	336	1000	277
16.0	12.5	500	110	390	152
12.5	10.0	250	80	230	96
10.0	6.3	100	84	80	88
Total		**16500**	**1746**	**14345**	**1467**

Results

Flakiness Index(%):	10.58
Elongation Index(%):	10.23
Combined FI+EL (%)	20.81

Assistant Executive Engineer
Kodigehalli ... Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors.
Date of Testing	:	16/02/2018
Type of Mix	:	DBM
Sample I/D	:	DBM-1

GRADATION FOR DBM
(As per MORT&H 500-10,Grading-2)

Sample Location:	At plant	**Date of Sampling:**	16/02/2018
		Date of testing:	16/02/2018
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	1500.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0	0	0.00	100.00	100.00
26.50	82	82	5.47	94.53	90-100
19.00	110	192	12.80	87.20	71-95
13.20	244	436	29.07	70.93	56-80
4.750	322	758	50.53	49.47	38-54
2.360	182	940	62.67	37.33	28-42
0.300	352	1292	86.13	13.87	7-21
0.075	152	1444	96.27	3.73	2-8
Pan	56				
Total	1500.0				

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(WZ)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors.
Date of Testing	:	17/02/2018
Type of Mix	:	DBM
Sample I/D	:	DBM-1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	825	900
2. Weight of Mixture after extraction, g	790	862
3. Weight of Bitumen	35	38
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.20	4.50
6. Weight of fines, g	2.20	2.50
7. Weight of Bitumen & fines	37.20	40.50
8. Bitumen content in %	4.51	4.50
9. Average Bitumen content in %	4.50	
10. Minimum Bitumen content in %	4.50	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	At site	**Date of Sampling:**	17/02/2018
		Date of testing:	17/02/2018
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	790

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	42.0	42.0	5.32	94.68	90-100
19.00	110.0	152.0	19.24	80.76	71-95
13.20	96.0	248.0	31.39	68.61	56-80
4.750	122.0	370.0	46.84	53.16	38-54
2.360	112.0	482.0	61.01	38.99	28-42
0.300	152.0	634.0	80.25	19.75	7-21
0.075	95.0	729.0	92.28	7.72	2-8
Pan	61.0				
Total	790.0				

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

A.E(L2)

Consultant's Representative

For M/s. RAM & COMPANY

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	17/02/2018
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.762	0.738
Final weight of plate after application of tack Coat (c)	Kg	0.785	0.761
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE (Tech)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	17/02/2018
Type of Mix	:	Tack coat DBM
Sample I/D	:	2

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.771	0.753
Final weight of plate after application of tack Coat (c)	Kg	0.794	0.776
Weight of tack coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

AE 07

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

AE (07)

Consultant's Representative

For M/s. RAM & COMPANY

Partner

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	BC	Date of Sampling	19/02/2018
Sample Location	At plant	Date of Testing	19/02/2018

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	350.00	375.00	400.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	270.00	292.00	312.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	80.00	83.00	88.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	22.86	22.13	22.00	
5	Average Aggregate impact value	(%)	22.33			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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Partner

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Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	BC	Proposed Use	BC
Sample Location	At plant	Date of Sampling	19/02/2018
		Date of Testing	19/02/2018

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	950	110	840	78
16.0	12.5	1150	96	1054	112
12.5	10.0	650	72	578	68
10.0	6.3	550	58	492	52
Total		3300	336	2964	310

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.18
Elongation Index(%):	10.46
Combined FI+EL (%)	20.64

Assistant Executive Engineer
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Bangalore.

AE(W)

For M/s. RAM & COMPANY
Partner

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	19/02/2018
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-18,Grading-2)

Sample Location:	At plant	Date of Sampling:	19/02/2018
		Date of testing:	19/02/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	100	100.0	8.33	91.67	79 - 100
9.50	98	198.0	16.50	83.50	71 - 95
4.75	220	418.0	34.83	65.17	53 - 71
2.360	110	528.0	44.00	56.00	42 - 58
1.180	120	648.0	54.00	46.00	34 - 48
0.600	110	758.0	63.17	36.83	26 - 38
0.300	124	882.0	73.50	26.50	18 - 28
0.150	120	1002.0	83.50	16.50	12 - 20
0.075	115	1117.0	93.08	6.92	4 - 10
Pan	83.0				
Total	1200.0				

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Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	19/02/2018
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-18,Grading-2)

Sample Location:	At plant	Date of Sampling:	19/02/2018
		Date of testing:	19/02/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	96	96.0	8.00	92.00	79 - 100
9.50	110	206.0	17.17	82.83	71 - 95
4.75	246	452.0	37.67	62.33	53 - 71
2.360	132	584.0	48.67	51.33	42 - 58
1.180	102	686.0	57.17	42.83	34 - 48
0.600	100	786.0	65.50	34.50	26 - 38
0.300	152	938.0	78.17	21.83	18 - 28
0.150	100	1038.0	86.50	13.50	12 - 20
0.075	98	1136.0	94.67	5.33	4 - 10
Pan	64.0				
Total	1200.0				

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TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20/02/2018
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	950	850
2. Weight of Mixture after extraction, g	897	803
3. Weight of Bitumen	53	47
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.10	4.30
6. Weight of fines, g	2.10	2.30
7. Weight of Bitumen & fines	55.10	49.30
8. Bitumen content in %	5.80	5.80
9. Average Bitumen content in %	**5.80**	
10. Minimum Bitumen content in %	**5.80**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-18,Grading-2)

Sample Location:	At site	Date of Sampling:	20/02/2018
		Date of testing:	20/02/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	897.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	86	86.0	9.59	90.41	79 - 100
9.50	118	204.0	22.74	77.26	71 - 95
4.75	142	346.0	38.57	61.43	53 - 71
2.360	111	457.0	50.95	49.05	42 - 58
1.180	100	557.0	62.10	37.90	34 - 48
0.600	78	635.0	70.79	29.21	26 - 38
0.300	72	707.0	78.82	21.18	18 - 28
0.150	62	769.0	85.73	14.27	12 - 20
0.075	80	849.0	94.65	5.35	4 - 10
Pan	48.0				
Total	897.0				

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AE(W7) N.D

Consultant's Representative

For M/s. RAM & COMPANY

Partner

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX		
Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20/02/2018
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	925	875
2. Weight of Mixture after extraction, g	873	826
3. Weight of Bitumen	52	49
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	3.70	3.80
6. Weight of fines, g	1.70	1.80
7. Weight of Bitumen & fines	53.70	50.80
8. Bitumen content in %	5.81	5.81
9. Average Bitumen content in %	**5.81**	
10. Minimum Bitumen content in %	**5.80**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-18,Grading-2)

Sample Location:	At site	Date of Sampling:	20/02/2018
		Date of testing:	20/02/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	873.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	92	92.0	10.54	89.46	79 - 100
9.50	112	204.0	23.37	76.63	71 - 95
4.75	136	340.0	38.95	61.05	53 - 71
2.360	120	460.0	52.69	47.31	42 - 58
1.180	100	560.0	64.15	35.85	34 - 48
0.600	85	645.0	73.88	26.12	26 - 38
0.300	68	713.0	81.67	18.33	18 - 28
0.150	40	753.0	86.25	13.75	12 - 20
0.075	76	829.0	94.96	5.04	4 - 10
Pan	44.0				
Total	873.0				

Assistant Executive Engineer,
Kodigehalli Sub Division,
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Bangalore.

AE(Retd)

For M/s. RAM & COMPANY

Partner

Consultant's Representative

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20/02/2018
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.833	0.852
Final weight of plate after application of tack Coat (c)	Kg	0.856	0.875
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(W7)

TEJUS CONSULTANTS

Consultant's Representative

For M/s. RAM & COMPANY

Partner

Name of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	20/02/2018
Type of Mix	:	Tack coat
Sample I/D	:	2

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.785	0.761
Final weight of plate after application of tack Coat (c)	Kg	0.808	0.784
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

AE(L7)

Consultant's Representative

For M/s R A M & COMPANY

Partner

TEJUS
CONSULTANTS

KERB STONE (CORE) TEST REPORT

t	:	Bruhat Bangalore Mahanagara Palike
ractor	:	M/S Ram and Company, Engineers & Contractors.
e of Work	:	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Sample Tested	:	3
f Testing	:	22/02/2018
nical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
de of Concrete	:	M_{15}

	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
	50.00	85.00	0.406	2432.64	1.70	0.960	28.22	14.37	15.52	14.90	18.63
	50.00	85.00	0.402	2408.67	1.70	0.960	28.50	14.51	15.68	15.05	18.81
	50.00	85.00	0.410	2456.60	1.70	0.960	28.80	14.67	15.84	15.21	19.01

report shall not be reproduced, except in full, without the written approval of the laboratory.
results indicated above are based on the tests carried out on the samples received in the laboratory.
Query regarding the report must be reported reported within 90 days from the date of testing.

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

For M/s. Ram & COMPANY
Partner

Consultant's Representative

TEJUS
CONSULTANTS

Test Report on Compressive strength of Solid Block

Project	Improvements to Roads and drains at Coffee Board Layout, Mariyannapalya and surrounding Areas in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Cross sectional area	60000mm2
Size of cube	400mm x 150mm x 200mm
No. of Block Tested	1
Reference IS code:	IS:2185 (Part 1)- 2005

Sl.No.	Date of Sampling	Date of testing	Area of Cube	Failure load	Compressive strength	Minimum Required compressive strength of individual units
			mm^2	KN	N/mm^2	N/mm^2
1	22/02/2018	22/02/2018	60000	252.00	4.20	4.30
2	22/02/2018	22/02/2018	60000	262.00	4.37	
3	22/02/2018	22/02/2018	60000	260.00	4.33	

AGW 7

Assistant Executive Engineer,
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N.D
AE(07)

For M/s. RAM & COMPANY

Partner

TEJUS CONSULTANTS

Consultant's Representative